



## Braycote 601 EF

Grease, Rust Preventive, Rocket Propellant Compatible

### Description

Castrol Braycote™ 601 EF is a smooth, buttery, translucent, off-white, NLGI #2 grease. Its base oil (Castrol Brayco® 815Z) is a perfluorinated polyether, with exceptional chemical resistance, extremely low volatility, and a wide temperature service range. The grease is non-toxic, nonflammable, and does not use any chlorofluorocarbons (CFC's) during product manufacture. This product exhibits unusually high load-carrying capabilities as measured by the Four-Ball EP Test, and contains a rust and corrosion inhibitor for extra component protection. Castrol Fluoroclean™ X100 or Castrol Fluoroclean™ HE can be used to remove this lubricant. Refer to the data sheets for these products for information regarding these products.

### Application

Braycote 601 EF is designed to operate in the presence of rocket fuels and oxidizers and high vacuum. It is frequently used in space applications including the Space Shuttle and satellites. It should also be considered in any application where a hostile chemical or extreme environmental conditions would preclude the use of an ordinary grease. Typical applications include ball and roller bearings, gears, and as an assembly lubricant for O-rings and elastomers. Perfluorinated greases, such as this product, exhibit excellent shelf life due to their intrinsic inertness.

### Additional Information

#### Temperature Range

-80°C to 204°C (-112°F to 400°F)

#### Limitations

Braycote 601 EF is compatible with most commonly utilized materials, plastics, and elastomers. It may be adversely affected by Lewis Acid Catalysts such as aluminum chloride, at elevated temperatures. Newly exposed rubbing surfaces of aluminum, magnesium and titanium alloys may react with this product under certain conditions. Such systems should be thoroughly evaluated. Surfaces must be well cleaned of organic rust inhibitors prior to grease application to insure proper lubrication. This product is not recommended for use in applications under high vacuum with loads exceeding 100,000 psi for extended periods of time.

#### Packaging

Braycote 601 EF is available in 2 oz and 4 oz (AVDP) disposable polypropylene syringes, 1 lb jars, and 1.75 lb cartridges. A specially prepared "micronic", ultra clean version is available upon request.

## Typical Characteristics

Name	Method	Units	Braycote 601 EF
Unworked Penetration	ASTM D217 / IP 50	0.1 mm	285
Worked Penetration (60 strokes @ 25°C / 77°F)	ISO 2137 / ASTM D217	0.1 mm	286
Oil Separation (30 hrs @ 204°C / 400°F)	ASTM D6184 / FTM 321.2	% wt	11.1
Rust Test (distilled water)	ASTM D1743	Pass	1,1,1 Pass
Copper Corrosion (24 hrs, 100°C / 212°F)	ASTM D4048	Rating	1b
Four Ball Wear test - Wear Scar Diameter (40 kgf / 75°C / 1200 rpm / 1 hr)	ISO 51350 / ASTM D2266	mm	0.91
Dropping Point	ASTM D2265	°C/°F	213 / 415
Four Ball Weld Load test - Weld Point	ISO 11008 / ASTM D2596	kgf	800+
Vacuum Stability	ASTM E595 / NASA SP-R-0022A	Total Weight Loss (% wt) / Volatiles (%wt)	0.36 / 0.03
Low temperature Torque - starting torque @ -62°C / -80°F	ASTM D1478	N/m	0.0573
Low temperature Torque - torque after 60 mins @ -62°C / -80°F	ASTM D1478	N/m	0.0224
Low temperature Torque - starting torque @ -73°C / -100°F	ASTM D1478	N/m	0.1402
Low temperature Torque - torque after 60 mins @ -73°C / -100°F	ASTM D1478	N/m	0.0625
LOX Impact Sensitivity (100 mm, 20 drops)	-	Pass	Pass
Evaporation Loss (22hrs @ 204°C / 100°F)	ASTM D2595	% wt	0.87
Density of finished grease @ 15°C / 59°F	In-house test	lb/gallon	16.7
Density of finished grease @ 15°C / 59°F	In-house test	g/ml	1.948
Specific Gravity @ 15°C / 59°F	ASTM D287	-	1.8531
Base oil Density @ 15°C / 59°F	ISO 12185 / ASTM D4052	kg/m <sup>3</sup>	1539.5
Base Oil Viscosity @ 100°C / 212°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	45
Base Oil Viscosity @ 40°C / 104°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	148
Base Oil Viscosity @ -54°C / -65°F	ISO 3104 / ASTM D445	mm <sup>2</sup> /s	10,855
Viscosity Index	ISO 2909 / ASTM D2270	-	350
Pour Point	ISO 3016 / ASTM D97	°C/°F	-72 / -100
Knudsen Vapour Pressure @ 20°C / 68°F	-	Torr	4x10 <sup>-13</sup>
Knudsen Vapour Pressure @ 100°C / 212°F	-	Torr	2x10 <sup>-9</sup>
Knudsen Vapour Pressure @ 200°C / 392°F	-	Torr	2x10 <sup>-6</sup>

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